

REMARKS

The Present Invention and Pending Claims

Claims 1, 2, 5-9, 14-17, 19, 23-27, 37, 39, and 40 are pending and directed to novel compounds, compositions, and methods for photodynamic therapy which function by a unimolecular mechanism.

Amendments to the Claims

The claims have been amended to point out more particularly and claim more distinctly the present invention. Claims 18, 20-22, and 28-36 been canceled as directed towards non-elected subject matter. Claims 3, 4, 10-13, 38, and 41-116 had been canceled previously. Claims 1 and 19 have been amended in accordance with the elected invention. In addition, claim 1 has been amended to reinstate that B and B¹ can be a sulfur-containing group. This term was inadvertently omitted in the previous amendment. Because of the cancellation of claim 18, the dependency of claim 19 has been amended. Claim 14 has been amended to make it more clear that the recited ligands refer to the moiety "L." Finally, the term "includes" has been amended to "is" in claims 19, 23, 26, and 27. Accordingly, no new matter has been added by way of these amendments.

Summary of the Office Action

Claims 1, 2, 5-9, 14-37, 39, and 40 are rejected either under 35 U.S.C. § 112, first paragraph, as allegedly nonenabled, 35 U.S.C. § 112, second paragraph, as allegedly indefinite, or as directed to nonelected subject matter. Reconsideration of these rejections is hereby requested.

Discussion of the Rejections

According to the Office Action, in claim 1 the terms "heterocycle and macrocycle" and "dimer, oligomer, and polymer" are outside of the elected invention." These terms have been omitted from claim 1 as directed towards nonelected subject matter.

The Office objects to the phrase "...M is optionally complexed with at least one additional ligand other than a ligand of the formula" L because the phrase allegedly is too open-ended. Certain metals (e.g., V) have coordination numbers such that even when one or two enediyne-containing ligands are complexed to M, there are open valencies in which an additional ligand can bind. These additional ligands often are desirable for the overall stability or chemical properties (e.g., water solubility) for the metal complex. This phrase is not considered open-ended because not every moiety can serve as a ligand. The moiety must

have the proper electronic structure and geometry so that it can bind to an open valency on the metal center. The types of suitable ligands are considered well known in the art, and, accordingly, an ordinarily skilled artisan would be able to turn to any inorganic text and find numerous examples of suitable ligands (see, for example, Shriver et al., *Inorganic Chemistry*, 2nd Ed., (New York: W.H. Freeman and Company, 1994)). Moreover, the present specification provides ample teachings of exemplary ligands other than those of formula L. See, for example, page 15, line 18, through page 18, line 20 and page 20, line 5, through page 21, line 1. Therefore, one having ordinary skill in the art would readily be able to determine the meaning and the limitations of the phrase "...at least one additional ligand other than a ligand of the formula" L, consistent with what is known in the art and as described by the specification. Also in this regard, the Office suggests that claim 14 be combined with claim 1. Applicants note that the recited ligands in claim 14 refer to the moiety "L" itself, and not to additional ligands that may complex to M. Claim 14 has been amended to make this point more clear.

The Office questions the previous deletion of sulfur-containing groups for the definition of B and B¹. This term has been added to claim 1, since it was inadvertently omitted previously.

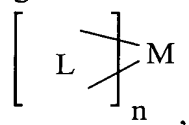
The terms "heterocycle and macrocycle" in claim 19 are considered to be outside the elected invention. These terms have been deleted from claim 19 as directed towards nonelected subject matter.

The Office contends that claims 28-34 are outside the elected invention. Claims 28-34 have been canceled as directed towards nonelected subject matter.

Claim 8 allegedly is indefinite because it does not state what the nitrogen-containing group is. Applicants note that the purpose of claim 8 is to further limit the definition of B and/or B¹ based on the language of claim 1. More specifically, B and/or B¹ is a nitrogen-containing group capable of complexing with M, as opposed to a sulfur- or oxygen-containing group capable of complexing with M.

The Office objects to the term "at least" in claims 9, 14, 16, 18, 19, 23, 26, and 27 because purportedly it is "open to the inclusion of unknowns." In each of these claims, the term "at least" is not open-ended. In claim 9, the term "at least" means that at least one of B and B¹ is a nitrogen-containing group capable of complexing with M. In other words, the nitrogen-containing groups recited in claim 9 can be chosen for substituent B, substituent B¹, or substituents B and B¹ (i.e., 3 possibilities). Similarly, in claim 16, the term "at least" means that one or both of R¹ and R² is substituted with a recited substituent. Again, there are

only 3 possible situations. In claim 14, the term "at least" means that at least one ligand L is selected from the recited ligands. In the general formula



n is 1-3 (i.e., the number of ligands complexed to the metal, M), therefore the term "at least" means 1, 2, or 3 ligands. In claims 19, 23, 26, and 27, the term "at least" refers to the fact that depending on the metal, additional ligands other than the enediyne-containing ligand can complex to M. The term "at least" in this case is not open-ended because depending on the metal chosen, the coordination number will be readily known. Typically, coordination numbers of transition metals range from 2 to 12. If the metal has one enediyne-containing ligand, L, complexed to it, then the metal can have 0 to 10 valencies available to complex an additional ligand. If the metal has two (or three) enediyne-containing ligands, L, complexed to it, then the metal can have up to 8 (or 6) valencies available to complex an additional ligand. Claim 18 has been canceled. Therefore, the term "at least" is definite in each of claims 9, 14, 16, 19, 23, 26, and 27.

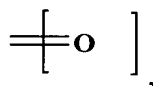
The Office objects to claim 18 on the basis that it is not clear what the additional ligand is. In order to advance prosecution, and not in acquiescence of the rejection, claim 18 has been canceled.

Claims 19, 23, 26, and 27 have been rejected because of the term "includes." This term has been replaced with "is."

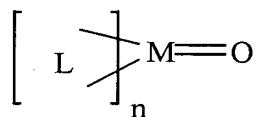
The subject matter of claims 20 and 21 is considered to be outside the elected invention. These claims have been canceled as directed towards nonelected subject matter.

The Office contends that it is not clear how the bipyridyl is bonded in claim 22. Claim 22 has been canceled as directed towards nonelected subject matter.

Allegedly claim 23 contains a partial structure. Claim 23 recites that the additional ligand is a ligand of the formula:



which means that the metal M is complexed to an oxo ligand. In other words, the general formula has the following structure:



Therefore, the structure provided in claim 23 is not a partial structure because the open valencies on oxygen show that it is complexed to M.

Claim 24 is rejected because allegedly the term “bicyclic” is too vague. Claim 24 is dependent on claim 19, which recites that Q² is an aryl that is monocyclic or polycyclic. Thus, claim 24 further specifies that Q² is an aryl bicyclic group. The meaning of this term is commonly known in the art. It includes such moieties as, for example, naphthyl and biphenyl. One of ordinary skill in the art would readily be able to determine the meaning of a aryl bicyclic group based on common knowledge in the art and the teachings of the specification.

The Office objects to the term “aryl” in claim 25 on the grounds that it is not specified (a) what the aryl group is or (b) how it is connected to the remaining structure. The purpose of claim 25, which is dependent on claim 19, is to further specify that Q² is an aryl group, as opposed to a C₂-C₆ alkyl spacer (see claim 19). The term “aryl” is used in its ordinary meaning as understood in the art. The term “aryl” refers to any hydrocarbon-based aromatic group, regardless of whether it is part of a monocyclic or polycyclic structure. Several examples of an aryl group are described by the specification (see, e.g., page 16, lines 15-22, and page 20, lines 7-10). Moreover, the ordinarily skilled artisan would readily know how the aryl substituent would attach to the remainder of the molecule. Thus, decisions such as selecting a suitable substituent and knowing how to attach it are considered well within the purview of one of ordinary skill in the art.

According to the Office, claim 35 should be written as dependent on claim 1. Claim 35 has been canceled as directed towards nonelected subject matter.

The Office questions how claim 36 relates to claim 1. Claim 36 has been canceled as directed towards nonelected subject matter.

Allegedly, claim 37 appears to reflect the need for B and/or B¹ to be sulfur in claim 1. As stated above, claim 1 has been amended to reflect that B and/or B¹ can be sulfur (an inadvertent omission). However, the sulfur-containing moieties in claim 37 correspond to the additional ligand *other than* a compound of formula L.

In view of the foregoing, the amended claims are enabled and definite, and the rejections should be withdrawn.

Information Disclosure Statements

The first page of the Office Action indicates that at least one of the Information Disclosure Statements has been considered. However, the Office Action did not contain an Examiner-initialed copy of either 1449-Form. Applicants respectfully request that the

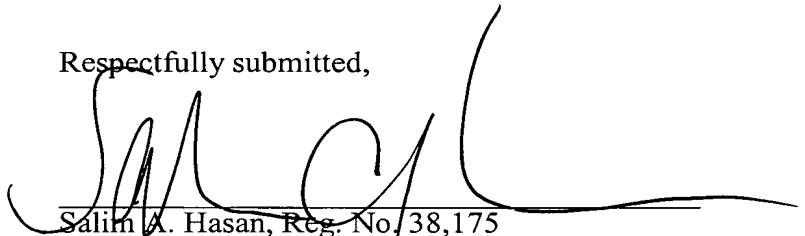
In re Appln. of Zaleski et al.
Application No. 09/913,924

initialed forms indicating consideration of references AA-AE and AF-CT be forwarded to Applicants at the Examiner's convenience.

Conclusion

The application is considered in good and proper form for allowance, and the Examiner is respectfully requested to pass this application to issue. If, in the opinion of the Examiner, a telephone conference would expedite the prosecution of the subject application, the Examiner is invited to call the undersigned attorney.

Respectfully submitted,

A large, stylized handwritten signature in black ink, appearing to read 'Salim A. Hasan', is written over a horizontal line.

Salim A. Hasan, Reg. No. 38,175
LEYDIG, VOIT & MAYER, LTD.
Two Prudential Plaza, Suite 4900
180 North Stetson Avenue
Chicago, Illinois 60601-6780
(312) 616-5600 (telephone)
(312) 616-5700 (facsimile)

Date: April 5, 2004